

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Total Metals By EPA Method 200.8

Client ID: M02577  
Date Received: 06/26/08  
Date Extracted: 06/30/08  
Date Analyzed: 07/01/08  
Matrix: Water  
Units: ug/L (ppb)

Client: Alaskan Copper Works  
Project: PO M02577, F&BI 806314  
Lab ID: 806314-01 x10  
Data File: 806314-01 x10.033  
Instrument: ICPMS1  
Operator: hr

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125

Analyte:	Concentration ug/L (ppb)
Chromium	448
Nickel	368
Copper	394
Zinc	13.5

# FRIEDMAN & BRUYA, INC.

## ENVIRONMENTAL CHEMISTS

### Analysis For Total Metals By EPA Method 200.8

Client ID: Method Blank  
Date Received: Not Applicable  
Date Extracted: 06/30/08  
Date Analyzed: 07/01/08  
Matrix: Water  
Units: ug/L (ppb)

Client: Alaskan Copper Works  
Project: PO M02577, F&BI 806314  
Lab ID: I8-259 mb  
Data File: I8-259 mb.025  
Instrument: ICPMS1  
Operator: hr

Internal Standard:  
Germanium

% Recovery:  
89

Lower  
Limit:  
60

Upper  
Limit:  
125

Analyte:	Concentration ug/L (ppb)
Chromium	<1
Nickel	<1
Copper	<1
Zinc	<1

**FRIEDMAN & BRUYA, INC.****ENVIRONMENTAL CHEMISTS**

Date of Report: 07/07/08

Date Received: 06/26/08

Project: Metro Self Monitor, PO M02577, F&amp;BI 806314

**QUALITY ASSURANCE RESULTS  
FOR THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL METALS USING EPA METHOD 200.8**

Laboratory Code: 806334-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Chromium	ug/L (ppb)	2.38	2.52	6	0-20
Nickel	ug/L (ppb)	1.82	1.88	3	0-20
Copper	ug/L (ppb)	<1	<1	nm	0-20
Zinc	ug/L (ppb)	176	185	5	0-20

Laboratory Code: 806334-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Chromium	ug/L (ppb)	20	2.38	93	50-150
Nickel	ug/L (ppb)	20	1.82	92	50-150
Copper	ug/L (ppb)	20	<1	94	50-150
Zinc	ug/L (ppb)	50	176	79 b	50-150

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Chromium	ug/L (ppb)	20	99	70-130
Nickel	ug/L (ppb)	20	101	70-130
Copper	ug/L (ppb)	20	101	70-130
Zinc	ug/L (ppb)	50	84	70-130

**Data Qualifiers & Definitions**

- a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.
- A1 - More than one compound of similar molecule structure was identified with equal probability.
- b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.
- ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.
- c - The presence of the analyte indicated may be due to carryover from previous sample injections.
- d - The sample was diluted. Detection limits may be raised due to dilution.
- ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.
- dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.
- fb - The analyte indicated was found in the method blank. The result should be considered an estimate.
- fc - The compound is a common laboratory and field contaminant.
- hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.
- ht - The sample was extracted outside of holding time. Results should be considered estimates.
- ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.
- j - The result is below normal reporting limits. The value reported is an estimate.
- J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.
- jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.
- jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.
- lc - The presence of the compound indicated is likely due to laboratory contamination.
- L - The reported concentration was generated from a library search.
- nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.
- pc - The sample was received in a container not approved by the method. The value reported should be considered an estimate.
- pr - The sample was received with incorrect preservation. The value reported should be considered an estimate.
- ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.
- vo - The value reported fell outside the control limits established for this analyte.
- x - The pattern of peaks present is not indicative of diesel.
- y - The pattern of peaks present is not indicative of motor oil.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.  
Charlene Morrow, M.S.  
Yelena Aravkina, M.S.  
Bradley T. Benson, B.S.  
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July 7, 2008



INVOICE #08ACU0707-1

Accounts Payable  
Alaskan Copper Works  
628 South Hanford  
Seattle, WA 98134

RE: Project Metro Self Monitor, PO M02577, F&BI 806314 - Results of testing  
requested by Gerry Thompson for material submitted on June 26, 2008.

1 sample analyzed for Total Chromium, Copper, Nickel and Zinc by Method 200.8 @ \$85 per sample	\$ 85.00
Rush Charges (7 day) 20% of \$85.00	<u>17.00</u>
Amount Due .....	\$ 102.00

FEDERAL TAX ID # (b) (6)

$\pi \perp 4$ ☐ Will call with instructions

Samples received at 20 °C

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July 7, 2008

Gerry Thompson, Project Manager  
Alaskan Copper Works  
628 South Hanford  
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on June 26, 2008 from the Metro Self Monitor, PO M02577, F&BI 806314 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
ACU0707R.DOC